

Claims:

1-34 Previously Canceled

35. (Original) An apparatus for the relative movement of hairs through and facilitation of their controlled isolation, comprising:

- A hair isolation area means for substantially isolating at least one surface-attached hair-like fiber from any said surface-attached hair-like fibers trailing it;
- a cued hair supply means for supplying cued surface-attached hair-like fibers in which the hair-like fibers are cued substantially in the order that they will be supplied and between two supply cycles said cued surface-attached hair-like fibers remain substantially cued so that a substantially defined set of the trailing cued hairs can be supplied immediately after those leading hairs that were supplied in the immediately prior supply cycle and yet to be successfully supplied hairs wait their turn substantially in cue to be supplied in the following supply cycle;
- a repeating dispensing means for repeatedly dispensing substantially intact a substantially controlled amount of hair into said hair isolation area means by repeatedly receiving hair from said cued hair supply means and dispensing it into said hair isolation area means.

36. (Original) The apparatus of claim 35 further comprising:

- a dispensing actuation means for actuating said repeating dispensing means;
- a hair-flow sequencing control means for controlling the actuation of said dispensing actuation means so as to dispense hair into said hair isolation area means at a moment in the processing sequence when said hair isolation area means is ready to accept more hair.

37. (Original) The apparatus of claim 35 further comprising:

- a hair processing means for processing said surface-attached hair-like fibers so as to change their cosmetic appearance, whereby it processes hairs in said hair isolation area means;
- a hair processing actuation means for actuating said hair processing means;
- a hair processing sequencing control means for controlling the actuation of said hair processing actuation means in order to cause the actuation of said hair processing means so that processing

occurs when said surface-attached hair-like fibers are positioned appropriately relative to said hair processing means so as to be ready for processing.

38. (Currently Amended) The apparatus of claim 35 further comprising a straightening maintenance means for providing and maintaining longitudinal lengths of said surface-attached hairs in a substantially perpendicular orientation relative to their direction of movement through ~~said repeating dispensing means~~ relevant portions of said apparatus.
39. (Original) The apparatus of claim 38 wherein said straightening maintenance means comprises a hair tensioning means for applying tension to said surface-attached hairs so as to cause the orientation of their longitudinal shafts relative to the surface which they are attached to be substantially perpendicular.
40. (Currently Amended) The apparatus of claim 38 wherein said straightening maintenance means comprises a perpendicular orientation sensor control means for providing and maintaining said surface-attached hairs in a substantially perpendicular orientation relative to their direction of movement through ~~said repeating dispensing means~~ by using sensor-controlled movement of said ~~repeating dispensing means~~ relevant portions of said apparatus relative to said surface-attached hairs.
41. (Currently Amended) The apparatus of claim 40 wherein said perpendicular orientation sensor control means comprises a tension-based sensor-control means for basing relative movement control of said ~~repeating dispensing means~~ relevant portions of said apparatus on tension detected in said surface-attached hair-like fibers.
42. (Currently Amended) The apparatus of claim 40 wherein said perpendicular orientation sensor control means comprises a speed-based sensor control means for basing relative movement control of said ~~repeating dispensing means~~ relevant portions of said apparatus on speed of advancement of said ~~repeating dispensing means~~ relevant portions of said apparatus relative to the surface of hair attachment.

43. (Original) The apparatus of claim 35 wherein said repeating dispensing means comprises a hair transport means for engaging a limited number of hairs in said cued hair supply means and transporting them into said hair isolation area means.

44. (Original) The apparatus of claim 43 further comprising a hair processing means for processing said surface-attached hair-like fibers in a manner so as to change their cosmetic appearance in which at least some of the cosmetic change is facilitated using a force whose source is independent of any force applied by any movement of said hair transport means, whereby said hair processing means is positioned so as to have access to hairs in said hair isolation area means.

45. (Currently Amended) The apparatus of claim 43 further comprising a ~~second~~ subsequent hair transport means for engaging the hairs provided to said hair isolation area means by said repeating dispensing means and further transporting said hairs.

46. (Original) The apparatus of claim 35 wherein said repeating dispensing means comprises a hair pathway obstruction means for intermittently obstructing the path of hair flow from said cued hair supply means to said hair isolation area means.

47. (Original) The apparatus of claim 46 further comprising:

- a hair metering area that is positioned at a point along the hair-flow pathway earlier encountered than said hair pathway obstruction means so that the path of hair flow from said hair metering area into said hair isolation area means is intermittently obstructed by said hair pathway obstruction means;
- a hair pushback gate means for intermittently obstructing the path of hair flow from said cued hair supply means into said metering area so as to substantially isolate a limited number of hairs in said metering area between said hair pushback gate means and said hair pathway obstruction means allowing substantially only the hairs in said metering area to pass said hair pathway obstruction means upon its intermittent allowance of hair flow.

61. (Original) The apparatus of claim 35 further comprising:

- a hair-extension supply means for supplying hair extensions into said hair isolation area means;

- a hair attachment substance means for attaching said hair extensions to said surface-attached hair-like fibers, whereby said attachment substance means provides continued attachment of the hairs;
- a hair attachment substance supply means for supplying said hair attachment substance means into said hair isolation area means in which it comes in contact with both said hair extensions and said surface-attached hair-like fibers so as to attach the two types of fibers together.

49. (Original) The apparatus of claim 48 further comprising an attachment substance supply sequencing control means for controlling said hair attachment substance supply means so as to provide said hair attachment substance means into said hair isolation area means at a moment in the processing sequence when the hairs to be attached are in said hair isolation area means.

50. (Original) The apparatus of claim 48 further comprising:

- an attachment substance fixation means for fixing said attachment substance means so as to effectuate the attachment of said hair extensions to said surface-attached hair-like fibers;
- an attachment substance fixation supply means for supplying said attachment substance fixation means into said hair isolation area means so that it may be introduced to said attachment substance means in order to effectuate attachment of the hairs.

51. (Original) The apparatus of claim 48 further comprising an excess attachment substance removal means for removing any excess of said hair attachment substance means from said hair isolation area means so as to leave a coating of said hair attachment substance means on the hairs to be attached.

52. (Currently Amended) The apparatus of claim 35 further comprising:

- a longitudinal hair movement means for moving at least one of said surface-attached hair-like fibers in a longitudinal direction along its shaft relative to and through said hair isolation area means so as to convey a length of said surface-attached hair-like fiber through said hair isolation area means;
- a coating substance;
- a coating substance supply means for supplying said coating substance ~~into the interior of~~ to said surface-attached hair-like fiber that is in said hair isolation area means so as to coat said surface-attached hair-like fiber as it is conveyed longitudinally through said hair isolation area means.

53. (Currently Amended) The apparatus of claim 35 further comprising:

- a longitudinal hair movement means for moving at least one of said hair surface-attached hair-like fibers in a longitudinal direction along its shaft relative to and through said hair isolation area means so as to convey a length of said surface-attached hair-like fiber through said hair isolation area means;
- a cross-sectional reshaping means for reshaping the cross-sectional shape of said surface-attached hair-like fiber as it is conveyed longitudinally through relative to said cross-sectional reshaping means by said longitudinal hair movement means, whereby said cross-sectional reshaping means substantially overlaps is situated to have access to the hair fiber as it is longitudinally conveyed through said hair isolation area means.

54. (Original) The apparatus of claim 35 further comprising:

- a hair surface row segregation means for segregating said surface-attached hair-like fibers substantially originating from two adjacent surface areas so that the segments of the hair shafts that will be processed are segregated in a specific row prior to and during hair dispensing by said repeating dispensing means and said hair surface row segregation means rests on the surface to which said surfaced-attached hair-like fibers are attached and is substantially stationary relative to said surface during processing,;
- a track guide means for guiding said repeating dispensing means by substantially continuous contact between said track guide means and said repeating dispensing means so as to provide alignment with one of the segregated rows of surface-attached hair-like fibers so as to allow the hair segments from substantially only this single segregated row to be guided into said repeating dispensing means as it moves along a substantially defined path that substantially coincides with said single segregated row and this alignment during repeating dispensing means movement is possible individually for both adjacent rows of segregated surface-attached hair segments.

55. (Currently Amended) The apparatus of claim 54 further comprising:

- a position ascertaining means for ascertaining longitudinal position of said hair isolation area means along a specific row of said track guide means;

- a row determination means for ascertaining within which of the segregated rows said hair isolation area means is positioned;
- a longitudinal conveyance means for conveying a longitudinal segment of a group of at least one surface-attached hairs longitudinally through said hair isolation area means;
- a hair length measurement means for ascertaining the longitudinal length of said longitudinal segment of the group of surface-attached hairs that has been conveyed through said hair isolation area means by said longitudinal conveyance means;
- a cutting means for cutting hair that is in said hair isolation area means;
- a cutting control means for using data coming from said position ascertaining means and said row determination means and said hair length measurement means and corresponding to a specific longitudinal position along a specific segregated row to compare to ~~recorded~~ intended hair length data substantially corresponding to the position so as to trigger said cutting means to cut the group of longitudinally conveyed hairs at a moment when the group's linear length measured from said cutting means to the surface of hair attachment approximately equals the ~~recorded~~ intended hair length.

56. (Currently Amended) The apparatus of claim 35 further comprising a bend-under means for applying a conveying force that conveys surface-attached hair-like fibers through said apparatus at a rate faster than said apparatus is moving relative to the surface of hair attachment causing said surface-attached hair-like fibers to be conveyed substantially longitudinally along their shafts through and relative to said apparatus and under an obstructing portion of said apparatus.

57. (Currently Amended) The apparatus of claim 56 wherein said bend-under means comprises a below ~~apparatus obstruction~~ bend-under means for engaging said surface-attached hair-like fibers at a location partially ~~substantially~~ below ~~said hair isolation area means~~ an obstructing portion of said apparatus and applying a conveying force that conveys the hair-like fibers at a rate faster than said apparatus is moving relative to the surface of hair attachment causing said hair-like fibers to be conveyed longitudinally along their shafts through said apparatus and under said obstructing portion of said apparatus.

Appl. No. 09/530,303 Amdt Date: 12-30-03 Filing: 4-27-00 GAU: 3732 Exmnr: Manahan, T
58. (Original) The apparatus of claim 56 wherein said bend-under means comprises a rotary conveyance means for applying a conveying force to said surface-attached hair-like fibers by engaging said surface-attached hair-like fibers at a point which moves on a rotary mechanism.

59. (Currently Amended) The apparatus of claim ~~56~~ 35 ~~wherein said bend-under means comprises further~~
comprising an apparatus elevation conveyance means for applying a relative conveying force to said surface-attached hair-like fibers by elevating an obstructing portion of said apparatus away from the surface to which said hair-like fibers are attached so as to convey the fibers substantially longitudinally along their shafts through said apparatus and under said obstructing portion of said apparatus.

60. (Original) The apparatus of claim 35 further comprising:

- an attachment substance degrading means for degrading an attachment substance that is holding hair extensions together with said surface-attached hair-like fibers;
- an attachment degrading application means for applying said attachment substance application degrading means to hairs isolated in said hair isolation area means;
- a detached hair extension separation conveyance means for conveying hair extensions detached by said attachment substance degrading means away from said surface-attached hair-like fibers.

61. (Currently Amended) The apparatus of claim 35 further comprising:

- a hair-flow reversing means for causing surface-attached hairs that have entered said hair isolation area means to exit it substantially in the reverse ~~moving toward the~~ net direction that they approached said hair isolation area means to enter it;
- an exiting hair separation means for intermittently substantially separating the exiting hairs that reversed direction so as to exit said hair isolation area means from the hairs in said cued hair supply means and said exiting hair separation means is positioned along the hair-flow path between said hair isolation area means and the hairs in said cued hair supply means;
- a reversed hair exit pathway means for allowing the exiting hairs that have been reversed in direction out of said hair isolation area means by said hair-flow reversing means to exit said apparatus through said reversed hair exit pathway means and its origin is positioned along the hair-flow path between said exiting hair separation means and said hair isolation area means and its terminus is positioned

clear of the path of hair flow into said repeating dispensing means so as to direct the exiting hairs away from reentering said repeating dispensing means.

62. (Original) An apparatus for attaching hair extensions to surface-attached hair-like fibers, comprising:

- a hair attachment area in which said hair extensions are attached to said surface-attached hair-like fibers;
- a hair-extension supply means for supplying hair extensions into said hair attachment area;
- a surface-attached hair-like fiber supply means for supplying said surface-attached hair-like fibers into said attachment area;
- a hair attachment substance means for attaching said hair extensions to said surface-attached hair-like fibers;
- a hair attachment substance supply means for supplying said hair attachment substance means into said hair attachment area in which it comes in contact with both said hair extensions and said surface-attached hair-like fibers so as to attach the two types of hairs together.

63. (Currently Amended) The apparatus of claim 62 further comprising an attachment substance supply sequencing control means for controlling said hair attachment substance supply means so as to trigger release of said hair attachment substance means into said hair attachment area at a moment in the processing sequence when the hairs to be attached are in said hair attachment area.

64. (Original) An apparatus for the processing of hairs which are attached to a surface configured so that processing of any hair only occurs a substantially controlled number of times, comprising:

- a hair processing means for processing surface-attached hair-like fibers so as to change their appearance as a group;
- a hair surface row segregation means for segregating said surface-attached hair-like fibers substantially originating from two adjacent surface areas so that the segments of the hair shafts that will be processed are segregated in a specific row prior to and during processing by said hair processing means and said hair surface row segregation means rests on the surface to which said surface-attached hair-like fibers are attached and is substantially stationary relative to said surface during processing,;

- a track guide means for guiding said hair processing means by substantially continuous contact between said track guide means and said hair processing means so as to provide alignment with one of the segregated rows of surface-attached hair-like fibers to allow the hair segments from substantially only this single segregated row to be guided into said hair processing means as it moves along a substantially defined path that substantially coincides with said single segregated row and this alignment during hair processing means movement is possible individually for both adjacent rows of segregated surface-attached hair segments.

65. (Original) The apparatus of claim 64 wherein said hair processing means comprises a means for attaching hair extensions to said surface-attached hair-like fibers and further comprising:

- a hair attachment area in which said hair extensions are attached to said surface-attached hair-like fibers;
- a hair-extension supply means for supplying hair extensions into said hair attachment area;
- a surface-attached hair-like fiber supply means for supplying said surface-attached hair-like fibers into said attachment area;
- a hair attachment substance means for attaching said hair extensions to said surface-attached hair-like fibers;
- a hair attachment substance supply means for supplying said hair attachment substance means into said hair attachment area in which it comes in contact with both said hair extensions and said surface-attached hair-like fibers so as to attach the two types of hairs together.

66. (Currently Amended) An apparatus for attaching non-surface-attached hair-like fibers to a surface amongst surface-attached hair-like fibers already attached to said surface, comprising:

- a hair channel pathway means for guiding said surface-attached hair-like fibers into an area of high concentration coinciding with said hair channel pathway means so as to leave an area of decreased surface-attached hair-like fiber concentration lateral to said hair channel pathway means;
- an application area means for applying non-surface-attached hair-like fibers in proximity to said surface wherein said application area means is positioned to substantially coincide with said area of decreased surface-attached hair-like fiber concentration;

- a supply means for supplying said non-surface-attached hair-like fibers into said application area means;
- an attachment means for attaching said non-surface-attached hair-like fibers in said application area means to said surface, whereby said non-surface-attached hair-like fibers may either be attached directly to said surface or indirectly attached to said surface by way of attachment to the pre-existing surface-attached hair-like fibers.

67. (Original) The apparatus of claim 66 wherein said supply means comprises a unified group supply means for supplying a unified group of non-surface-attached hair-like fibers into said application area means.

68. (Original) The apparatus of claim 66 wherein said application area means comprises an attachment area means in which attachment of non-surface-attached hair-like fibers to said surface occurs.

69. (Original) The apparatus of claim 66 wherein said non-surface-attached hair-like fibers are in the form of a hair plug and wherein said attachment means comprises a sub-dermal hair plug delivery means for delivering said hair plug sub-dermally into to the surface of hair attachment and wherein said surface of hair attachment is the scalp.

70. (Original) The apparatus of claim 64 wherein said hair surface row segregation means comprises multiple rows that together substantially form a cap structure that substantially conforms to a human head.

71. (Original) The apparatus of claim 64 wherein said hair processing means comprises a hair cutting means for cutting said surface-attached hair-like fibers so as to change their appearance as a group.

72. (Original) The apparatus of claim 64 wherein said hair processing means comprises a hair extension attachment means for attaching hair extensions to said surface-attached hair-like fibers so as to change the appearance of said surface-attached hair-like fibers as a group.

Appl. No. 09/530,303 Amdt Date: 12-30-03 Filing: 4-27-00 GAU: 3732 Exmnr: Manahan, T
73. (Currently Amended) The apparatus of claim 64 wherein said hair processing means comprises a cross-sectional reshaping means for reshaping the cross-sectional shape of said surface-attached hair-like fibers as they are longitudinally conveyed through relative to said cross-sectional reshaping means.

74. (Currently Amended) The apparatus of claim 64 wherein said hair processing means comprises a hair coating application means for applying a coating to said surface-attached hair-like fibers as they are longitudinally conveyed through relative to said hair coating application means.

75. (Original) The apparatus of claim 64 wherein said hair processing means comprises a sub-dermal hair plug delivery means for delivering a hair plug sub-dermally into to the surface of hair attachment so as to change the appearance of the pre-existing surface-attached hair-like fibers as a group and wherein said surface of hair attachment is the scalp.

76. (Currently Amended) The apparatus of claim ~~62~~ 77 further comprising a bend-under means for applying a conveying force that conveys said surface-attached hair-like fibers through said apparatus substantially longitudinally along their shafts at a linear rate faster than said apparatus is moving along a vector whose net direction is substantially parallel relative to the surface to which said surface-attached hair-like fibers are attached so as to cause said surface-attached hair-like fibers to be conveyed substantially longitudinally along their shafts through and relative to said apparatus and under an obstructing portion of said apparatus, thereby assisting their exit from said apparatus.

77. (Currently Amended) The apparatus of claim ~~76~~ 62 wherein said surface-attached hair-like fiber supply means substantially supplies said surface-attached hair-like fibers by said apparatus's relative movement along a vector whose direction is substantially parallel to the surface to which said surface-attached hair-like fibers are attached so as to encourage these fibers to enter said surface-attached hair-like fiber supply means and this direction of movement is substantially continuous between entrance of two separate batches of hair into said hair attachment area.

78. (Currently Amended) The apparatus of claim 62 wherein said surface-attached hair-like fiber supply means substantially supplies said surface-attached hair-like fibers by moving along a vector whose

Appl. No. 09/530,303 Amdt Date: 12-30-03 Filing: 4-27-00 GAU: 3732 Exmnr: Manahan, T
direction is substantially parallel to the surface to which said surface-attached hair-like fibers are attached so as to encourage these fibers to enter said surface-attached hair-like fiber supply means and this direction of movement is substantially continuous between entrance of two separate batches of hair into said hair attachment area, further comprising:

- a hair-flow reversing means for causing surface-attached hairs that have entered said hair attachment area to exit it substantially in the reverse ~~moving toward the~~ net direction that they approached said hair attachment area from to enter it;
- an exiting hair separation means for intermittently substantially separating the exiting hairs that reversed direction so as to exit said hair attachment area from the hairs in said surface-attached hair-like fiber supply means that have yet to enter said attachment area and said exiting hair separation means is positioned along the hair-flow path between said hair attachment area and the hairs in said surface-attached hair-like fiber supply means that have yet to enter and be cosmetically processed in said attachment area;
- a reversed hair exit pathway means for allowing the exiting hairs that have been reversed in direction out of said hair attachment area by said hair-flow reversing means to exit said apparatus through said reversed hair exit pathway means and its origin is positioned along the hair-flow path between said exiting hair separation means and said hair attachment area and its terminus is positioned clear of the entrance path of hair flow into said attachment area so as to direct the exiting hairs away from reentering said attachment area.

79. (Currently Amended) An apparatus for the cross-sectional reshaping of a surface-attached hair-like fiber comprising:

- a hair isolation area means in which at least a single surface-attached hair-like fiber can be substantially isolated from other surface-attached hair-like fibers;
- a longitudinal hair movement means for moving at least one of said hair surface-attached hair-like fibers in a longitudinal direction along its shaft relative to and through said hair isolation area means so as to convey a length of said surface-attached hair-like fiber through said hair isolation area means;
- a cross-sectional reshaping means for reshaping the cross-sectional shape of said surface-attached hair-like fiber as it is conveyed longitudinally through relative to said cross-sectional reshaping

means by said longitudinal hair movement means, whereby said cross-sectional reshaping means substantially overlaps said hair isolation area means.

80. (Currently Amended) The apparatus of claim 79 wherein said cross-sectional reshaping means is comprised of a cutting edge that shaves material off the surface of said surface-attached hair-like fiber as it is ~~pulled~~ conveyed through relative to said hair isolation area means.

81. (Currently Amended) The apparatus of claim 79 wherein said hair isolation area means is supplied said surface-attached hair-like fibers by apparatus's relative movement ~~moving~~ along a vector whose direction is substantially parallel to the surface to which said surface-attached hair-like fibers are attached so as to encourage these fibers to enter said hair isolation area means and this direction of movement is substantially continuous between entrance of two separate batches of hair into said hair isolation area means.

82. (Original) The apparatus of claim 35 further comprising a post-isolation hair transport means for engaging at least one of said surface-attached hair-like fibers in said hair isolation area means and transporting said surface-attached hair-like fiber.

83. (Original) The apparatus of claim 35 further comprising a hair presence sensor means for sensing the presence of at least one of said surface-attached hair-like fibers in said hair isolation area means.